

# PATENT COOPERATION TREATY

## UNCLAW

### PCT

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
IBM UNITED KINGDOM LIMITED  
Intellectual Property Law  
Attn. Fournier, Kevin John  
Hursley Park  
Winchester  
Hampshire SO21 2JN  
UNITED KINGDOM

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year) 01/12/2005

Applicant's or agent's file reference

POU030140

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.

PCT/EP2004/051499

International filing date

(day/month/year) 15/07/2004

Applicant

INTERNATIONAL BUSINESS MACHINES CORPORATION

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**

Shortly after the expiration of 18 months from the priority date, the International application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the International application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an International preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority

European Patent Office, P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx 31 651 epo nl,  
Fax: (+31-70) 340-2016

Authorized officer

Ahmed Soliman

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PCU030140	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2004/051499	International filing date (day/month/year) 15/07/2004	(Earliest) Priority Date (day/month/year) 17/09/2003
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the International search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

## 4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

## 6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

 International Application No  
 PCT/EP2004/051499

**A. CLASSIFICATION OF SUBJECT MATTER**  
 G06F9/50

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**
 Minimum documentation searched (classification system followed by classification symbols)  
 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/29598 A (LEARNING TREE INTERNATIONAL) 11 April 2002 (2002-04-11) page 3, line 11 - page 4, line 14 page 9, line 12 - page 15, line 18 page 16, line 16 - page 20, line 10 figures 2-4 claims 1,2  --- -/-	1-27

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

 "A" document defining the general state of the art which is not  
 considered to be of particular relevance

 "E" earlier document but published on or after the international  
 filing date

 "L" document which may throw doubts on priority claim(s) or  
 which is cited to establish the publication date of another  
 citation or other special reason (as specified)

 "O" document referring to an oral disclosure, use, exhibition or  
 other means

 "P" document published prior to the international filing date but  
 later than the priority date claimed

 "T" later document published after the international filing date  
 or priority date and not in conflict with the application but  
 cited to understand the principle or theory underlying the  
 invention

 "X" document of particular relevance; the claimed invention  
 cannot be considered novel or cannot be considered to  
 involve an inventive step when the document is taken alone

 "Y" document of particular relevance; the claimed invention  
 cannot be considered to involve an inventive step when the  
 document is combined with one or more other such docu-  
 ments, such combination being obvious to a person skilled  
 in the art

"Z" document member of the same patent family

Date of the actual completion of the international search

21 November 2005

Date of mailing of the international search report

01/12/2005

Name and mailing address of the ISA

 European Patent Office, P.B. 5818 Patentamt 2  
 NL - 2280 HV Rijswijk  
 Tel: (+31-70) 340-2040, Tx: 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Knapczyk, F

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/051499

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>HAND S ET AL: "Controlling the XenoServer Open Platform" INTERNET CITATION, 'Online! March 2003 (2003-03), pages 1-9, XP002333901 CAMBRIDGE Retrieved from the Internet: URL:citeseer.ist.psu.edu/hand03controlling.html&gt; 'retrieved on 2005-11-21! abstract page 1, right-hand column, line 32 - page 2, left-hand column, line 37 page 3, left-hand column, line 47 - right-hand column, line 24 page 5, left-hand column, line 39 - right-hand column, line 1 page 6, right-hand column, line 47 - page 9, left-hand column, line 4 figure 4</p> <p>-----</p>	<p>1-4, 8-10,13, 14,18, 19,22, 23,27</p>
A	<p>BARHAM PAUL R. ET AL.: "XEN 2002" TECHNICAL REPORT, 'Online! 31 January 2003 (2003-01-31), pages 1-15, XP002355082 CAMBRIDGE UK Retrieved from the Internet: URL:http://www.cl.cam.ac.uk/TechReports/UCAM-CL-TR-553.pdf&gt; 'retrieved on 2005-11-18! abstract page 4, left-hand column, line 4 - page 5, left-hand column, line 26 page 15, left-hand column, line 9 - line 12 figure 1</p> <p>-----</p>	<p>1-27</p>
A	<p>EP 0 473 913 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 11 March 1992 (1992-03-11) the whole document</p> <p>-----</p>	<p>1-27</p>

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/EP2004/051499

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0229598	A	11-04-2002	AU	1131902 A	15-04-2002
			CA	2424568 A1	11-04-2002
			EP	1323057 A1	02-07-2003
EP 0473913	A	11-03-1992	JP	5088922 A	09-04-1993

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/EP2004/051499

International filing date (day/month/year)  
15.07.2004

Priority date (day/month/year)  
17.09.2003

International Patent Classification (IPC) or both national classification and IPC  
G06F9/50

Applicant  
INTERNATIONAL BUSINESS MACHINES CORPORATION

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the international Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



European Patent Office - P.B. 6818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
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Authorized Officer

Knapczyk, F

Telephone No. +31 70 340-8989



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/051499

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/051499

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**Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	2-5,8-10,13,14,17,19,20,22,23
	No: Claims	1,6,7,11,12,15,16,18,21,24-27
Inventive step (IS)	Yes: Claims	
	No: Claims	1-27
Industrial applicability (IA)	Yes: Claims	1-27
	No: Claims	

**2. Citations and explanations**

**see separate sheet**



**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: WO 02/29598 A (LEARNING TREE INTERNATIONAL) 11 April 2002 (2002-04-11)

D2: HAND S ET AL: "Controlling the XenoServer Open Platform" INTERNET CITATION, [Online] March 2003 (2003-03), pages 1-9, XP002333901 CAMBRIDGE Retrieved from the Internet:  
URL:citeseer.ist.psu.edu/hand03controlling .html> [retrieved on 2005-11-21]

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 18 and 27 is not new in the sense of Article 33(2) PCT.

- 2.1. The document D1 discloses (the references in parentheses applying to this document):

A method of managing execution of requests of a computing environment (page 3, line 21 to page 4, line 4 and page 13, lines 4 and 5), said method comprising:

- obtaining by a node of the computing environment a request to be processed (page 13, lines 8 and 9 where the DLU is a node as stated in figure 2 and on page 15, lines 13 to 15);
- and
- starting a virtual machine on the node to process the request, said virtual machine being exclusive to the request (page 13, lines 10 to 15, page 15, lines 8 to 11 and page 12, 4 to 16; the virtual machine exclusive to the request is directly and unambiguously derivable from the document D1 where the virtual machine is created following the user request for a training exercise and as soon as the exercise is done, the virtual machine is shut down).

Therefore, the subject-matter of claim 1 is not novel.

- 2.2. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 18 and 27, which therefore are also considered

not new.

3. Dependent claims 2 to 17 and 19 to 26 do not contain any features which, in combination with the features of any claim, meet the requirements of the PCT in respect of novelty or inventive step, the reasons being the following:

- 3.1. The subject-matter of claims 6, 7, 11, 12, 15 and 16 is not novel because the document D1 also discloses:

- the virtual machine shut down when the request is completed, the resource returning (page 15, lines 8 to 11 where the freed space taken by temporary file is a returned resource),
- the detection of the availability of a node (page 13, lines 4 to 9) from the information obtained from the virtual machines (page 17, lines 6 to 10).
- the processing of the request by the virtual machine (page 13, lines 8 and 9), and
- the providing of an information about the request being processed (page 17, lines 1 to 10 where the information on how many virtual machines are currently running is an information about the request being processed and where the DLM is the job management service).

- 3.2. The subject-matter of claims 2 to 4, 8 to 10 is not inventive because the skilled person knows a system where a virtual machine starts a new virtual machine (see for instance the Xen system disclosed in the document D2, and particularly page 8, left-hand column, lines 2 to 32, figure 4, and page 3, left-hand column, line 47 to right-hand column, line 24 where it is clear that a new session involves the creation of a new virtual machine by the domain 0, the domains which virtualise the physical resource being virtual machines). The document D1 also describes that DLM controls start (start indication present on page 13, lines 10 to 12) and stop of VM (page 15, lines 8 to 11), provides and manages the requests via a network (page 13, lines 8 and 9 and page 12, lines 10 to 16 where the presence of a network implies a communication service).

- 3.3. The subject-matter of claim 5 is trivial as starting a virtual machine implies that adequate resources have to be provided. Therefore, the subject-matter of claim 5

is not involving an inventive step.

- 3.4. The subject-matter of claim 13 and 14 is not inventive because the adaptation of the system to an heterogeneous environment is known from the skilled person (see for instance the document D2, page 1, right-hand column, lines 33 to 35 and page 2, left-hand column, lines 27 to 32).
- 3.5. Concerning the subject-matter of claim 17, the document D1 also indicates that and that the started virtual machine is based on an image (page 13, lines 10 to 13). As the use of a read-only image each time a new virtual machine is started implies that the virtual machine is sanitised, the subject-matter of claim 17 is not inventive.
- 3.6. The subject-matter of claims 19 to 26 is the same as respectively the subject-matter of claims 3, 5, 6, 8, 10, 11, 12, 15 and 16 and is not novel or inventive for the same reasons.